

REMARKS

This application has been carefully reviewed in light of the Office Action dated July 28, 2004. Claims 1 to 4, 8, 10 to 13, 15 to 17, 19 to 24, 28, 30 to 33, 36, 37, 39 and 40 are pending in the application, of which Claims 1, 11, 16, 21, 31 and 36 are independent. Reconsideration and further examination are respectfully requested.

The drawings were objected to for allegedly failing to comply with 37 C.F.R. § 1.84(p)(5) because they included reference characters not mentioned in the description.

Applicants respectfully submit that reference numeral 212 of Fig. 1 is described in the specification at line 9 of page 10 as "image processing section 212". Accordingly, no amendment has been made in this regard. However, "S77-2" has been added to the specification at line 10 of page 23, and reference numerals "905-911" have been deleted from Figs. 9A, 9B, 9C and 9D, as required by the Examiner.

In addition, it was requested that Fig. 6 be designated by a legend such as -- PRIOR ART --. Such designation has been made, and Fig. 6, together with corrected Figs. 9A, 9B, 9C and 9D, are submitted herewith in the accompanying Submission Of Corrected Replacement Drawing Sheets. Accordingly, withdrawal of the objections to the drawings is respectfully requested.

Claims 1 to 5, 7, 11 to 16, 19 to 25, 27, 31 to 34, 36, 39 and 40 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,954,436 (Kageyama); Claims 8, 10, 17, 28, 30 and 37 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kageyama; and Claims 6, 9, 18, 26, 29, 35 and 38 were rejected under 35 U.S.C. §103(a) as being unpatentable over Kageyama further in view of U.S.

Patent No. 6,724,492 (Iwase). Reconsideration and withdrawal of these rejections are respectfully requested.

The present invention concerns a printing system having an image information generation apparatus coupled to an image forming apparatus. The image forming apparatus controls generation of double-sided printouts by requesting from the image information generation apparatus specific images for printing on a first or a second surface of a printing medium. In this way, the image forming apparatus makes decisions about how to process a double-sided printout independently of the image information generation apparatus. This allows a double-sided printout process to be specified by the capabilities of the image forming apparatus without requiring the image generation apparatus to understand those capabilities.

Turning to specific claim language, amended independent Claim 1 is directed to an image forming system having an image information generation apparatus for generating image information, and an image forming apparatus capable of forming images on both sides of a printing medium on the basis of the image information generated by the image information generation apparatus. The image information generation apparatus includes an image information generation unit adapted to generate image information, a storage unit adapted to store the generated image information to allow identifying whether the image information is first image information to be printed on a first surface of the printing medium or second image information to be printed on a second surface of the printing medium, a first reception unit adapted to receive a first signal to select the first image information or the second image information in order to transmit to the image forming apparatus, a selection unit adapted to select one of the first image information and

the second image information on the basis of the first signal received by the first reception unit, and a first transmission unit adapted to transmit the image information selected by the selection unit to the image forming apparatus. The image forming apparatus includes a second transmission unit adapted to transmit the first signal, and a second reception unit adapted to receive the image information transmitted from the image information generation apparatus, and an image forming unit adapted to form an image on the first surface or the second surface of the printing medium on the basis of the image information received by the second reception unit.

In accordance with amended independent Claim 1, the present invention may be characterized as an image forming apparatus that is capable of transmitting a signal to select either first image information or second image information for printing. An image generation apparatus responds to the signal by transmitting the appropriate image information to the image forming apparatus. The image forming apparatus then prints the image information on the appropriate surface of a printing medium. In this way, the image forming apparatus, and not the image generation apparatus, controls double-sided printing without the need for buffering large amounts of image information within the image forming apparatus.

In contrast, Kageyama discloses a system for double-side printing that requires a large amount of buffering of image information held in a wait state. Kageyama discloses the double sided printing process as:

In the examples shown in FIG. 12, first of all, print data is drawn into page buffers sequentially one after another starting with the first page. Then, the odd-numbered pages(right sides) including the first, third and fifth pages

are put in a printing wait state, and the even-numbered pages(reverse sides) including the second, fourth and sixth pages, are printed sequentially. In the upper example shown in FIG. 12, the number of sheets retained in the printer engine reaches 3 when the second, fourth and sixth pages have been printed on three sheets, then the first page is printed on the a right side of a first sheet (a right side of the second page) and the first sheet is ejected. Since an empty place is available for another sheet at that time, the eighth page is printed, and the number of sheets retained in the printer engine back to 3 again. At this time, the third page is printed on the a right side of a second sheet (a right side of the fourth page), the second sheet is ejected. Thereafter, the printing continues with the tenth page, the fifth page, the twelfth page and so on. As a rule, at the end of a printing process for an odd-numbered page, the sheet is ejected. (Column 12, line 61 to column 13, line 15, emphasis added.)

Therefore, Kageyama discloses that a large amount of print data must be buffered by the printer controller during the printing process.

Furthermore, Kageyama fails to disclose a signal transmitted by an imaging forming apparatus to an image generation apparatus wherein the signal is used by the imaging forming apparatus to request first and second image information used in a double-sided printing. Instead, Kageyama discloses a host I/F signal line 901 (of FIG. 9) used for “communication between the host computer 100 and the printer controller 110 in accordance with an I/F protocol called a host I/F. The SCSI (Small Computer System Interface), RS232, RS422, GP-IB (General Purpose Interface Bus), Centronics, HDLC (High-Level Data Link Control) and Ethernet can be used as a physical I/F of this

communication(the host I/F).” (Column 9, line 62 to cColumn 10, line 4.) Kageyama further discloses two additional signal lines coupling printer controller 110 to printer engine unit 120 (both of FIG. 9). Signal line 902-2 (of FIG. 9) is used to transmit the contents of page buffers to the printer engine unit. Depending upon the type of printer engine used, signal line 902-1 (of FIG. 9) is used either to receive a print head position signal or used “for transmitting a command indicating an instruction and an inquiry to the printer-engine unit 120 including a command for receiving a response status from the printer-engine unit 120, a status transmission/reception signal and a control signal for controlling a procedure of read-out from the page buffers to the printer-engine unit 120.” (Column 10, Lines 49 to 55.)

Thus, Kageyama merely discloses use of a predetermined signals for specifying the status of printer-engine unit. These predetermined signals do not include a signal for selecting first or second image information as in the present invention. In a similar manner, host computer 100 disclosed by Kageyama does not transmit image information specified by selecting first image information to be printed on a first surface of the printing medium or second image information to be printed on a second surface of the printing medium as there is no appropriate selecting signal received from the printer-engine unit. As can be seen by the disclosure of Kageyama, host computer 100 transmits the image information as simply a printing command to command-buffer unit 112 of printer controller 110.

Iwase discloses an image forming apparatus that performs a trial printing based on a request signal. However, Iwase does not disclose or suggest a configuration for selecting first image information to be printed on a first surface of the printing medium or

second image information to be printed on a second surface of the printing medium in response to signal received from an imaging forming apparatus.

Each of the cited references does not teach or suggest a configuration for selecting first image information to be printed on a first surface of the printing medium or second image information to be printed on a second surface of the printing medium. Therefore, even if Kageyama and Iwase are combined, the combination would not disclose the present invention as claimed in amended independent Claim 1.

Amended independent Claims 11 and 16 are directed to an image generation apparatus and image forming apparatus, respectively, in accordance with the image forming system claimed in amended independent Claim 1. Therefore, Applicant submits that the discussion from above regarding amended independent Claim 1 applies equally to amended independent Claims 11 and 16.

Amended independent Claim 21 is directed to an image forming method as performed by the image forming system of amended independent Claim 1. Therefore, Applicant submits that the discussion from above regarding amended Claim 1 applies equally to amended independent Claim 21. Amended independent Claims 31 and 36 are directed to methods as performed by an image generation apparatus and an image forming apparatus, respectively, in accordance with the system claimed in amended independent Claim 1. Accordingly, Applicant submits that the discussion from above regarding amended independent Claim 1 applies equally to amended independent Claims 31 and 36.

The other pending claims in this application are each dependent from the independent claims discussed above and are therefore believed patentable for the same reasons. Because each dependent claim is also deemed to define an additional aspect of the

invention, however, individual consideration of each dependent claim on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, the entire application is believed to be in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience.

Respectfully submitted,



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